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TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLES:—The True Function of City Parks. . . . 261
Forestry in Pennsylvania. . . . 261
Private Forestry and State Forestry.—IV. . . . *C. A Schenck.* 262
Pomegranates and Oleanders in California Villages. . . . *Charles H. Shinn.* 263
The Agricultural Prospects of Alaska . . . . *M. W. Gorman.* 263
FOREIGN CORRESPONDENCE:—London Letter. . . . *W. Watson.* 264
NEW OR LITTLE-KNOWN PLANTS:—Lonicera gracilipes (With figure.). . . . 266
PLANT NOTES. . . . 266
CULTURAL DEPARTMENT:—Cultivation of the Calochortus. . . . *J. N. Gerard.* 267
The Abelias. . . . *G. W Oliver.* 267
Irises in Late June. . . . *J. N. Gerard.* 267
Flower Garden Notes. . . . *W. N. Craig.* 267
CORRESPONDENCE:—Licorice Root. . . . *B.* 268
The Bladder Nuts. . . . *Danske Dandridge.* 268
PERIODICAL LITERATURE. . . . 268
RECENT PUBLICATIONS:—The Spruce Forests of Maine.—II. . . . 269
NOTES. . . . 270
ILLUSTRATION:—Lonicera gracilipes, Fig. 34. . . . 265

The True Function of City Parks.

THE President of the Board of Education of this city has made a proposal to the Board of Public Parks, of which this is the essence: "There are few among our public-school children who are able to recognize when they see them the various grains, the production of which constitutes so large a portion of the wealth of this country. I suggest, therefore, that you prepare a small piece of ground in Central Park, say, two hundred feet long and fifty wide, and divide it off into distinct lines so that there can be sowed in the first division of the space wheat, in the second oats, in the third barley, in the fourth rye, and in the fifth corn. The crops can be allowed to grow until ready for harvest, when they can be cut, laid in shocks and sheaves, and allowed to remain for such a time as would be desirable for the continuance of this object-lesson."

Persons who are familiar with the history of our city parks are not surprised at any attempt to divert them from their primary purpose. Long before the lower half of Central Park was completed the Park Board was urged to display in the lake a model fleet of the different kinds of sailing craft, so that school children could learn the difference in build and rigging between a ship and a schooner. An eminent educator petitioned that the north meadow should be laid out as a map of the United States, with the chief products of each commonwealth growing in its proper latitude and longitude as an object-lesson in home geography. Half a dozen years ago an elaborate scheme was devised in Boston for locating small insectaries, aquaria and zoölogical collections in different parts of that city park system, with each group of animal life surrounded by the flora of that portion of the world in which it flourished. And since catalogues could never grow as rapidly as these museum collections would increase, it was advised that educated persons in different branches of biology should be stationed near each collection to answer questions and give instruction to visitors.

The trouble is that the zealous people who wish to transform the parks into places for public education and scientific research, or devote them to military parades or to public meetings for the advancement of religion or any other good cause, forget that the primary purpose of a rural park within reach of a great city is to furnish that rest and refreshment of mind and body which come from the tranquilizing influence of contact with natural scenery. Of course, people, young and old, can skate on the lakes in the winter, and listen to music which is provided in the summer, or play golf or ball where arrangements for such games are possible, but all these additions when they are successful are made subordinate to what should be the controlling purpose in the design and maintenance of such pleasure-grounds. Anything which interferes with the restful quality of the scenery in so far destroys the highest value of the park.

There is no need of offering specific objections to the proposal of President Hubbell. We dissent from his opinion that this growing crop of grain would be "ornamental," and we apprehend that if he would reflect upon this point he would agree with us that a square piece cut out of the turf in the north meadow, for instance, and planted in a checker-board of different colors of grain or stubble would not enhance the quiet beauty of the scenery. But if a beginning was made in this direction, why stop with five patches? Any one can see corn or oats or rye growing in their season within the city limits, and why not add buckwheat, the sorghums and millets, which are not so well known, but which are of growing importance to our agriculture every day. Besides these there are important leguminous forage plants worth knowing, and there are few city boys who can distinguish Kentucky Blue Grass from Red-top. Then there are Flax and Hemp and other fibrous plants, and no end to the different varieties of vegetation which enter largely into the economies of our every-day life. But the simple fact is that a collection of agricultural and economic plants is not a park, and it cannot be made into a park any more than a museum can develop into a library. The ideas are distinct and they may be conflicting. No doubt, education is a good thing, and scientific research is a good thing, but refreshment of mind and body is also a good thing, and it is an especially desirable relief from the nervous eagerness and intensity of the life in modern American cities. Why not leave the parks to furnish this rest, instead of turning them into cheap adjuncts of the university extension movement?

Forestry in Pennsylvania.

WE are too often overwhelmed with discouragement because honest and persistent efforts at disseminating rational views on the subject of forestry seem to produce such meagre results, but it should be remembered that the enlightenment of public sentiment is slow work, and while the fruits of educational labor are not always manifest at once, the seeds of good ideas may nevertheless be germinating for future harvests. Half a dozen years ago no sane man would have hoped that any one of the forest laws enacted by the last Pennsylvania Legislature would pass. But many earnest men and women have been writing and talking and memorializing until a public opinion has been developed which makes almost any good legislation in this direction possible. It is very plain, too, that the report of the Forestry Commission which was published last year has done much educational work in that state, while the influence of its Forestry Bureau, created the year before, has been constantly exercised for good.

The act which will probably give delight to the greatest number of intelligent people in the country is one which creates a great reservation at the head of each of the important rivers of the state, the Delaware, Susquehanna and the Ohio. Each of these reservations contains 40,000 acres or more, and since the bill passed the Senate with only one negative vote, it is more than probable that they will be greatly extended hereafter, and that this measure is the beginning, not only of systematic protection of forests, but of a conservative practice which will provide increasing forest supplies for the future. It

is a significant fact that this bill was introduced into the House of Representatives by an active lumberman, and was supported by others who have made fortunes in the same industry. The Governor of the state, who has showed before this that he is alive to the necessity of forestry reform, signed the bill with promptness and has expressed himself as desirous to be an active promoter of the scheme which the law makes possible.

Another act of equal importance, perhaps, encourages private owners to preserve their growing forests by remitting taxes on such property. The law provides that in consideration of the public benefit to be derived from the retention of timber-trees, the owners of land which carries not less than fifty trees to the acre, each tree being at least eight inches in diameter at a height of six feet above the ground, shall be entitled to receive annually, so long as these trees are maintained in sound condition, a remission of four-fifths of the taxes assessed on such land. Besides these, there are other laws for the suppression of forest fires and for the protection of timber-land from depredation, which are not only good in themselves, but which are particularly significant as indicating the temper of mind which has made such legislation possible.

This action of the Pennsylvania Legislature is certainly most encouraging. It means that the people of that state have learned a good deal in the last ten years on this subject, and the fact that there are now in both houses of the Legislature standing committees on forestry, shows that the will of the people is making ready to express itself in law. It has not been in vain that such an officer as the Commissioner of Forestry was appointed and that a report on the condition of the woodlands of the state has been published and disseminated. This means education, and it is more than gratifying to know that the Legislature has provided for publishing 17,000 copies of this instructive report to replace those which were lost in the fire which ruined the state capitol. The state has begun to frame good laws for the protection, the preservation and the enlargement of its forests. The educational work should be kept up with vigor until an intelligent public sentiment is developed which will enforce all these acts up to the full spirit which inspired them.

Private Forestry and State Forestry.—IV.

IT is apparent that any state action in the direction of forestry will cost money. But the investment is sure to be profitable, partly through the influence of forestry on climate, water-supply, etc., partly by the annual growth of timber on the state lands.* I would not advise, in general, any haste in harvesting tree-growth from the state forests. The reason lies in the condition of the lumber industry. This great branch of the national resources must be preserved. That industry is now taking the timber from private lands. Opening such parts of state forests as are well timbered to axe and saw would tend to reduce the value of the stumpage of trees, and the destruction of forests would be accelerated. State forests as well as private would become bare of high-grade timber trees after the lapse of a few decades. But it goes without saying that a small part of the state forests might safely be put under economic forest management at an early date in order to gather experience.

The golden rule of state forestry at this time is, "Be quick in securing forests, firm in protecting and slow in using them."

Economic forest management cannot be established at a trifling expense.† Apart from the outlay for forests and foresters, a large sum must be spent for the creation of more permanent means of transport, such as wagon roads, pole roads, tramways, flumes, cable roads, etc. There is one method of transportation, however, that should not be adopted, namely, that of driving logs down to the floatable rivers by means of splash dams. Clearing the creeks for a splash means doing away with any obstacles or obstructions to the watercourse. For obvious reasons this should be avoided under state forest management. Any clearing of creeks accelerates the collection and downflow of precipitations. Such forestry, instead of preventing floods, would facilitate them; instead of regulating the water-supply it would endanger its regularity.

Another outlay to be incurred before economic forest management can begin is for a working plan. A working plan is a report consisting of two parts. The first part is a description, based on a topographical map of the growing stock, its productiveness, the existing and the possible means of transport, the most economical use to be made of the products, and the possible methods of regeneration. The second part is a plan of future operations, so arranged as to apportion the expenses and revenues over a series of years. It indicates what parts of the forest are to be cut over first; what parts, if any, are to be improved; what parts, if any, are to be replanted; what roads, etc., are first to be made. This work is not as inexpensive as might appear at a first glance, especially in a country in which forestry is entirely new. Mistakes at starting are unavoidable, but their number and importance can be lessened by laying down a well-considered working plan, and the larger the total area the smaller will be the expenditure per acre. A network of footpaths must be traced out as an aid to the work of protection, and, where necessary, occasional strips should be kept free of combustible matter. Of course, under favorable conditions, the expenditure for establishing economic forest management will be small. Where there are railroads or rivers running through the heart of the district, where timber can be hauled to the railroad or river on sledges, where there is a road system, where there are maps of sufficient accuracy, where there is a tolerably uniform growth of timber, it is easy to establish economic forestry. Beware, however, of plunging into forest work; in forestry, mistakes once made can only be corrected, if ever, after the lapse of a tree's life.

There is no need of stating that forest management can scarcely be expected to furnish an immediate revenue in districts where lumbering does not pay. Even in such districts, however, there is some return from forest protection; it is dormant, latent, it is not in available cash, it is added to the original stock of capital without any possibility of separation from it. The return consists in the improved quality and increasing value of the growing stock and of the soil. In a country in which the value of stumpage is rising rapidly, forest preservation is sure to pay.*

I am not sure that I have expressed my convictions in the forest question with sufficient clearness, and should like to summarize the principal points:

State forestry must come into play where districts administered solely with a view to the highest money return have ceased to act as a "barrier against losses."

Private forestry † in this country can be made remunerative, and therefore feasible, under a certain set of circumstances (a reduction of taxes on second growth and a protection against fire by state guards), the creation of which is the duty of the Government.

Biltmore, N. C. *C. A. Schenck.*

* The forest guards acting as fish and game keepers at the same time, in many cases considerable revenue can be derived from fishing and hunting leases. The leases should run for a score of years and should comprise one or two ranges each. Their wording should be such as would warrant the maintenance of a suitable stock of both game and fish, under the control of the rangers. There are plenty of sportsmen in the United States who will gladly pay as much money for the exclusive right of fishing and hunting on a reserved range as the annual salary of the ranger amounts to.

† Report of the United States Division of Forestry, 1892, page 314.

* Report of the United States Division of Forestry, 1892, page 307.

† There is a peculiar kind of private forestry already in existence here and there, which might be called park forestry. Park forestry, for landscape purposes, or for the sake of game preservation, voluntarily sacrifices a more or less considerable share of the money return attainable under exclusive economic forest management. It allows some trees to stand that ought to be felled and sold, and that merely because they are picturesque or because they bear seed which affords food to the game. Park forestry builds roads, not merely to facilitate the transport of forest products, but also to furnish pleasant drives and rides. It goes to the expense of planting varieties of trees in places where regeneration from self-sown seed would cover the ground in the course of time. It further allows the deer to nibble off the young shoots of trees. Such management is forestry because its main object is the forest. But it is not economic, financial forestry.

Pomegranates and Oleanders in California Villages.

NOVELISTS, when arranging their scenery, are apt to describe all villages as embowered in roses. As a matter of fact, hardly two villages in this state are similar in the character of their gardens, because soil, climate, situation and many curious accidents determine the kind of beginnings these gardens make and the lines of their development. Some of our mountain towns are noted for their Asters, others for their Dahlias, their Campanulas, their Balsams or their Carnations. One old mining camp grew to be a maze of white Lamarque Roses long before it was deserted. A little river-crossing in Shasta, where three or four log cabins clustered together, was once as fine a Geranium garden as America could then show. But I have been particularly interested in the use that is sometimes made of easily grown shrubs, cuttings of which are passed from neighbor to neighbor until the whole district has one characteristic garden plant. Among such are the Pomegranate and the Oleander.

There is a little town of the Sierra foot-hills named Ione, in Ione Valley, Amador County. Mountain streams and irrigation ditches cross it, and great groves of Oaks give dignity to the landscape. The pioneers planted many Apple, Pear and Cherry trees in irregular groups near the streams, so that one sometimes sees very large specimens of these fruit-trees, unpruned and neglected, but still bearing crops. The newer orchards and vineyards are much more profitable, though not half so attractive. The heart of the valley is almost a swamp. Giant Willow-trees, expanses of Marsh Grasses and Cat-tails, with impassable thickets of wild Blackberry vines, form a strange contrast to adjacent hills of white or red clay thickly clad with various species of Rhus, Ceanothus and Manzanita, with here and there a solitary Pine, the sentinel of some peak. The comparative isolation of the valley seems to have developed neighborliness and touched all Ione's gardens with an air of fellowship. Years ago, as one plainly reads the story, some one must have brought a scarlet-flowered Pomegranate from Sacramento and planted it. Cuttings were freely distributed, so that now, as I rode through the town in early June, I could not but admire the predominant Pomegranate color. Almost every garden has this royal shrub, standing in many cases twelve or fourteen feet high, and loaded with flowers, and fine specimens guard gateways or make the centrepiece of many a sheltered, sunny lawn, under the bluest of blue skies.

There are other foot-hill villages of California noted for especial flowers, the charm of which will long linger in one's memory. "There's them flowers you call Oleanders all over Douglas Bar," said an old pioneer woman to me up in Trinity County. "When me an' my ole man druv out here from Missouri I carried one in a tin can and watered it every day. Then, when we settled down in this camp, I rooted slips in bottles for everybody that wanted them. We didn't hev eny other kind of flowers except the wild ones till we got a schoolhouse. Then the teacher brought some Marigolds over the range. Next we hed a white Rose thet grew from a slip thet the stage-driver brung from Shasta. We thought it was awful pretty. 'Bout the time the war began we got some Morning-glory seed, and now, ef ye find one of these Oleander-bushes eneywhere in a cañon all by itself, look 'round, and close by there'll be the wreck of an ole cabin, a chimbly, or mebbe a gravestun, to mark some forty-niner's home. Some of them very bushes that I rooted in bottles is growing thirty miles away in the brush, with nobody left 'cept me to say anything about it."

Douglas Bar was a mining village beside the Trinity River, in the midst of Pine forests, and though it had many quaint and sweetly old-fashioned flowers in its sloping and terraced little gardens by the time I first saw it, the one preëminent floral fact was that Oleanders grew there in riotous profusion, as single tall specimens, as hedges, in clumps and masses of royal color to which everything else was subordinated. No one in Douglas had ever had the moral courage to own a garden without an Oleander. But this simple, oft-repeated element gave the visitor a pleasure hardly to be put into words; it glorified the land all summer long even more than those scarlet Pomegranates glorify the valley of Ione.

Niles, Calif. *Charles H. Shinn.*

The Agricultural Prospects of Alaska.

THE recent action of the Department of Agriculture, in sending a commission to Alaska to examine into, and report upon, the agricultural prospects of our northern province, may possibly have the effect of causing some people to infer that farm products can be grown successfully there, and for the information of such I give my experience while a resident there. Having lived for five seasons in Alaska, I would say that in my judgment the territory is wholly unsuitable, and in the nature of things must always remain unsuitable, for agriculture in the proper sense of that term. This unfitness is neither due to cold nor to the northern latitude, as most people suppose; on the contrary, the climate is very mild between the coast range and the ocean—the temperature at Sitka not being very materially lower than that of Portland, Oregon—while the long summer day of northern latitudes compensates for the shortness of the season. The two causes that militate against agriculture in the territory are paucity of soil and humidity of climate.

The lack of soil is remarkable. The surface of the country is generally a mass of moss-covered rocks, from the seashore to the mountain sides, the only exceptions to this rule being the sphagnum marshes, which are too wet to produce cultivated crops; the alpine meadows, which are too elevated for this purpose, and the few deltas and alluvial strips which have been deposited about the mouths of the larger streams. The latter and a few humus-covered spots on the shores of some of the bays and inlets are the only places available for agriculture in the whole territory. Where these patches have a south-western exposure and are properly drained, or the slope is sufficient for them to drain naturally, the long summer day of the region is so favorable that garden vegetables can be raised to some extent, but the raising of hay or grain is out of the question; it could not be harvested owing to the humid climate, even if it could be grown successfully.

As many persons may be desirous of knowing just what can be grown successfully, I herewith give, in alphabetical order, my experience with various grains, grasses and vegetables:

Barley does not ripen. Beans (Snap) do well. Beets give good results if the soil is drained. Cabbage can be raised, but it will not head. Carrots can be grown fairly well. Cauliflower does well in a dry season, but the heads are small. Clover I did not succeed with, possibly because the spot on which I tried it was unsuitable. Corn does not ripen at all, and only produces an abortive grain. Fruits (native) nearly all yield an abundant crop; the native Strawberry only does well on sandy spots, either alluvial or glacial; Salmon-berry, Rubus spectabilis, grows luxuriantly; Cloud-berry, R. Chamæmorus, is generally plentiful on the sphagnous marshes, but is occasionally caught by frost and proves a failure; the five native Huckleberries, Vaccinium parvifolium, V. ovalifolium, V. arbuscula, V. sp. and V. sp., are excellent and of fine flavor and always yield a large crop; the Cranberry, Vaccinium Oxycoccus, is scanty; the high bush Cranberry, Viburnum pauciflorum, is abundant and good; the Currants, Ribes acerifolium and R. bracteosum, yield a large crop, but are not of good flavor; the Service-berry, Amelanchier alnifolia, is scarce, but good, and the native Crab-Apple, Pyrus rivularis, is only good in favorable seasons.

Of the introduced fruits the Currant and Gooseberry are the only ones I found worth trying, but it is quite possible that some of the early varieties of Apples would do well if

grafted on the native Crab-Apple; just as the introduced Cherries in Oregon, when grafted on the native wild Cherry, Prunus mollis, excel any grown on their own stock.

The Grasses all grow luxuriantly and make excellent forage; the opinion expressed by some that cattle will not eat the native grasses is a mistake, the plants which they reject being some of the Sedges (Juncaceæ), which many people do not distinguish from the true Grasses. Lettuce does remarkably well, and by sowing at intervals it can be had ready for use the greater part of the season. Oats will ripen, but cannot be harvested. Onions will not do well when grown from seed, but when grown from sets produce very acceptable "green onions." Parsnips grow fairly well, but are small and not of first-class flavor. Peas of the early varieties do remarkably well, and far exceeded my expectations. Potatoes, though very late in sprouting some seasons, grow rapidly, and when planted in well-drained soil give a fairly abundant crop and of fine flavor. They have been cultivated for a century or more by the Indians (Haidas) on Prince of Wales Island. Radishes proved to be excellent, and when sown at intervals can be used all through the season. Rhubarb grows abundantly, but not of quite as good a flavor as when grown farther south. Rye will not ripen. Timothy grows luxuriantly, but cannot be harvested. Turnips, though not large, proved to be a good crop and of fine flavor. Wheat grows a good straw and well-developed head, but will not ripen, and could not be harvested if it did mature on account of the prevalent rains and continuous cloudy weather.

The quantity of rain which actually falls does not give a non-resident a proper idea of the impediments to agriculture in the territory, as the number of rainy days in proportion to the amount of rain is much greater than in the middle or eastern states, while the proportion of cloudy days and the consequent difficulty of harvesting a crop is still greater. To better illustrate this fact I submit the following record of precipitation and number of rainy days during the months of June, July and August for the years 1892, 1893, 1894 and 1895:

	1892.		1893.		1894.		1895.	
	No. of rainy days.	Rain in inches.	No. of rainy days.	Rain in inches.	No. of rainy days.	Rain in inches.	No. of rainy days.	Rain in inches.
June	19	3.62	22	4.60	21	3.57	21	6.77
July	23	6.81	22	9.26	20	8.97	17	5.85
August	28	10.61	24	12.70	19	9.49	26	8.68
Total for three summer months	70	21.04	68	26.56	60	22.03	64	21.30

This, however, being only for the three summer months, is still considerably below the average annual precipitation, which is 111.72 inches.

Even if the region was fully soil-covered, the surface of the country is so precipitous and uneven, and the annual rainfall so great, that the soil would soon be washed into the gulches and ravines if the hillsides were once denuded of their forest covering. The forests, while containing some valuable timber, such as the Tideland Spruce (Picea Sitchensis), Pacific Red Cedar (Thuya plicata) and Alaska Cypress (Cupressus Nootkaensis), are not nearly as extensive as many people suppose, and in any event will only be sufficient to supply the local demand.

In conclusion I would say that the territory can never, under any circumstances, be a field for the farmer, and, although the grasses are abundant and nutritious, it cannot be utilized for stock-raising, owing to the long winters.

Its only industrial possibilities are for the miner, the salmon-canner and the fur-hunter.

Portland, Ore. *M. W. Gorman.*

Among works of art of every class statues most rarely give permanent satisfaction, and if they are awkward, ungraceful or unsuitable for the situation in which they are placed, none are so obtrusive and unsatisfactory.—*Calvert Vaux.*

Foreign Correspondence.

London Letter.

Watsonia iridifolia O'Brieni is now finely in flower in an unheated frame at Kew, the spikes being over a yard high, and the flowers two inches across and snow-white. It is in every sense a first-rate garden plant and should prove a profitable investment for growers of bulbs for the wholesale market. It is better than many Watsonias in its behavior under cultivation, for it has flowered every year at Kew since it was first obtained in 1891. I have already described it fully in Garden and Forest, but I may repeat here that it is very similar to W. rosea in general appearance, with larger flowers than any other Watsonia, and very fragrant. I have seen spikes of it four feet high with five or six branches and bearing from thirty to forty flowers open at one time. It ought to be a good plant for forcing to flower in spring. W. Ardernei is another name for it.

Stenomesson aurantiacum.—This is an elegant summer-flowering bulbous plant which until lately has always been grown in pots under glass, but which has proved quite at home in an outside border against a warm house, where it is now flowering nicely. It has globose bulbs about an inch in diameter, linear oblong leaves produced along with the flowers, scapes from nine inches to a foot high, each bearing an umbel of about six flowers, which expand in succession, two or three being open together; they are nodding funnel-shaped, an inch and a half long, and of a rich orange-red color. It grows in the Andes of Ecuador at an elevation of 13,000 feet. The Coburgia section of Stenomesson includes several beautiful flowered species, which, however, are somewhat difficult to flower under cultivation, although they grow and multiply freely enough.

Helichrysum rosmarinifolium.—There is no more attractive shrub in June than this in the warmer parts of the United Kingdom. In Ireland, especially the south and west, it forms a bush six or eight feet high, and when in flower it resembles a snow-laden shrub; hence the name by which it is called there, namely, Snow in Summer. It is now flowering well against a wall at Kew, having withstood the comparatively mild past winter; as a rule, however, it is either killed or cut down to the ground by the winter cold experienced at Kew. It is better known, perhaps, by the name of Ozothamnus. It is a native of Van Dieman's Land and was introduced into England about seventy-five years ago.

Osteomeles anthyllidifolia.—This plant passed through the cold of last winter uninjured in a sunny position against a wall, and is now bearing numerous clusters of white May-like flowers. In countries where it would be quite hardy—it is not hardy at Kew—it forms an elegant bush or small tree with thin branches, pinnate leaves, more or less persistent, and flowers which in size of umbel, arrangement and color are not unlike those of the Amelanchier, to which genus Osteomeles is closely allied. Although well known to botanists as an interesting shrub of remarkable distribution, it was not introduced into cultivation until about five years ago. It is easily propagated from cuttings and it forms a nice pot-plant for the cool greenhouse. A second species, as yet unnamed, has lately been introduced into the Jardin des Plantes, Paris, and from thence to Kew.

Cedrus Atlantica aurea.—This well-known variety of the Atlas Cedar was well shown before the Horticultural Society by Messrs. Veitch and obtained a first-class certificate. In soils suitable to it, this golden-tinted form is likely to prove an attractive conifer and a worthy companion to Cedrus Atlantica glauca, of which there are some beautiful specimens in English collections.

Celmisia Monroii.—I lately noted this as being in flower at Kew. Some plants of it were exhibited by Messrs. Veitch & Sons at the last meeting of the Royal Horticultural Society, where it was awarded a first-class certificate. It was looked upon as a new introduction by most of those who saw it.

Fig. 34.—Lonicera gracilipes.—See page 266.

1. A flowering branch, natural size. 2. A fruiting branch, natural size. 3. Longitudinal section of a flower, enlarged. 4. A fruit cut horizontally, enlarged.

ROSES.—Collections of single and semidouble Roses are now frequent features of our plant exhibitions, and I am told by the nurserymen that these forms are growing in popularity at such a rate that it is difficult to supply the demand for them. The Penzance Briers have, no doubt, had something to do with this run on single Roses, and the large collection of all kinds of species and first crosses of Roses cultivated at Kew has, no doubt, also had some influence upon horticultural taste in this respect. The Rose garden at Kew—a large sunken area laid out with tree-roots with

grass walks among them, planted with masses of all kinds of showy species and subspecies—is now a great attraction. Nothing could be finer than Crimson Rambler, Carmine Pillar, the various forms of Rosa lutea, R. Indica, R. damascena, R. involucrata, R. moschata and R. rugosa when planted in bold masses either as in this Rose garden or in conspicuous places on lawns.

Vanda Agnes Joachim.—This is a hybrid raised at Singapore a few years ago from Vanda teres and V. Hookeri. It was named and described by Mr. Ridley, and afterward passed into the collection of Sir Trevor Lawrence, by whom it was shown in flower at a meeting of the Royal Horticultural Society, receiving a first-class certificate. Apparently it has inherited the robust free habit of V. teres, and shows none of the spindliness of the other parent. It bore a spike nearly two feet long carrying nine flowers and buds, which are like those of V. teres, but the lip has a larger midlobe, and the color of the whole flower is of a softer pink, with tinges of purple and yellow. It cannot be considered much superior to V. teres as a garden plant, but it is interesting as being the first hybrid Vanda raised artificially.

Large-flowered Cattleyas are becoming abundant. They were numerous at the Temple Show, and at the last meeting of the Royal Horticultural Society four new ones obtained certificates. The names of these are noteworthy: Lælio-Cattleya Dominiana, var. Empress of India; L.-C. Our Queen; Cattleya Mossiæ, Empress of India, and C. Mossiæ, In Memoriam, Richard Curnow. The last-named is, perhaps, the largest variety of C. Mossiæ known, and its colors are equally rich and striking. It was shown by Messrs. H. Low & Co., and the name is intended to commemorate one of their collectors. Among other good Cattleyas with bad names exhibited at this meeting were Lælio-Cattleya Canhamiana Langleyensis, L.-C. Canhamiana, var. Sappho, and L.-C. Canhamiana, var. Iolanthe. Judging by the large number of handsome forms of C. Mossiæ which have been exhibited in London recently, some new collecting ground must have been discovered for it. There is no more beautiful Cattleya than a good C. Mossiæ.

London. *W. Watson.*

New or Little-known Plants.

Lonicera gracilipes.

THIS bush Honeysuckle is a native of Japan, where it is not uncommon on the borders of mountain forests in central Hondo, and has been cultivated for ten years in the Arnold Arboretum, where it is perfectly hardy and has attained the height of four feet, forming a broad vigorous shrub.

Lonicera gracilipes* (see fig. 34, on page 265 of this issue, made by Mr. Faxon in the Arboretum) is a shrub with erect stems and spreading branchlets at first pale yellow-brown and conspicuously enlarged at the nodes, and at the end of two or three years becoming dark gray or grayish brown. The leaves are broadly ovate, rather abruptly contracted into short points, entire, thin, light green on the upper side, pale and glaucous on the lower, from an inch to an inch and a quarter long and from three-quarters of an inch to nearly an inch broad, with slender pale midribs, few obscure primary veins connected by conspicuously reticulate veinlets, and slender peduncles enlarged and clasping at the base and about an eighth of an inch long. The flowers, which appear as the leaves begin to unfold toward the end of April, are solitary or in pairs on slender nodding pedicels half an inch in length, their bracts being as long, or rather longer, than the calyx, which has a short nearly entire border; the corolla is white or pale straw-color, with a slightly gibbous tube gradually enlarged into the spreading reflexed acute lobes, and about three-quarters of an inch long. The fruit ripens early in June, and is oblong, one-third of an inch long, light bright blue and suspended on slender nodding stems.

Lonicera gracilipes is occasionally found in American and European gardens under the name of Lonicera or Zelostium Philomella.

* Miquel, *Versl. Med. Acad. Wetensch*, ser. 2, ii., 85 (1868); *Prol. Fl. Jap.*, 158.—Franchet & Savatier, *Enum. Pl. Jap.*, i., 205.—Dippel, *Handb. Laubhölz*, i., 257, f. 170 (a sterile shoot only).—Koehne, *Deutsche Dendr.*, 545.

Plant Notes.

Diervilla Japonica.—Many of the garden Weigelias bear abundant flowers of good color, ranging from a dark wine-color to pure white, but somehow the habit of these shrubs is stiff, and they do not seem to mingle well with other shrubs. In our last volume (see vol. ix., p. 405) we figured Diervilla Japonica, which was raised from seed gathered by Professor Sargent from wild plants in various parts of central and northern Japan. It is a common shrub by the banks of streams and along the borders of mountain woods. Here well-grown individual plants reach a height of fifteen feet and a diameter of from ten to twenty feet. This species is the only one which Professor Sargent saw, and he is inclined to believe that the three species of Maximowicz must be reduced to this one, which varies much in size in the pubescence of its leaves, in the number of its flowers and the length of the peduncles of its flower-clusters. It is from different types of this wild species, perhaps, that all the garden forms have been derived. It is easily propagated, and it has been flowering for three weeks past in the Arnold Arboretum and along the Boston parkways. Certainly it is a more graceful shrub than the Weigelias of gardens as we know them, and it can be unhestatingly commended for park planting. The flower-clusters are sometimes long-stalked, and sometimes nearly sessile, and they are rose-colored, yellow, dark red or nearly white on the same plant, since the flowers which are very pale when they open turn darker as they fade.

Cultural Department.

Cultivation of the Calochortus.

THE various species of Calochortus have been coming into flower since early June, and now, at the end of the month, are in their best form. These native plants seem to be much neglected, though they are among the most distinctly and beautifully flowered of bulbs. It is probable that many who have ventured to grow them have been disappointed in results, for the cultural directions of catalogues are usually hazy or else incorrect. They also often recommend cultivation in frames, or other conditions which deter most growers from attempting their cultivation. My experience with all the species is that they are not tender nor at all difficult to flower in this latitude in an ordinary garden border. I have tested them for several years and sacrificed my first collection to satisfy myself as to what they would or would not survive. One should hesitate in offering any hard and fast rule for the cultivation of plants, for they can often be grown under widely differing conditions. Calochortuses grow naturally in regions rainless in summer, and where dormant plants waken into growth in the fall under the influence of moisture, but not necessarily of a high temperature. They are hardy here without protection, but must be classed with those bulbous plants whose foliage will not endure always the rigors of our winters. The successful growth of such bulbs requires that, after being thoroughly ripened in the early summer, they shall be kept perfectly dormant so late in the year that no foliage can appear above ground until early in the ensuing spring. The simplest and safest procedure is to lift the bulbs after the ripening foliage indicates dormancy and store them in dry earth in a warm dry place, and plant out when the ground has lost its warmth, which in this locality is in November. Under such treatment they grow and flower well here, even in soil too hard to work in dry weather, and with no other attention than that already suggested. Of course, one does not plant bulbs in manured soil or in soil rich in humus, which will hold water and ferment to their injury. In the state of nature many bulbs seek the depths evidently to escape detrimental surface humus, a desire to shun bad company, which is not always shared by human beings. Calochortus bulbs, if left in the ground here,

may or may not survive the summer if the soil is not too wet, but the safe practice is to lift them.

There are more than a score of species. From a garden point of view they may be divided into two sections—the Star Tulips and the Mariposa, or Butterfly Tulips. The former are free-growing plants, many-stemmed and bear a profusion of small flowers, with petals closed into irregular globes. Calochortus pulchellus (yellow), C. albus and the red form, C. amœna, are the best trio. The Butterfly Tulips are entirely different in habit and form, and find their most distinct expression in the white and roseate flowered kinds, as these are spotted and lined with the butterfly markings, from which they receive the popular name. The markings are quaintly beautiful in dull reds, browns, yellows and green, sometimes in eye-like forms, at others in a few bold lines sketched, as it were, on some part of the broad petals, mostly on the base, but sometimes in the centre. Markings of similar character are also found on the very narrow green sepals. The flowers are three-petaled and about three inches in diameter, borne about twelve inches high on thin stems. The foliage is narrow and scanty. A good selection of these would be C. venustus œnlatus, C. pictus, C. venustus roseus and C. Eldorado (rose).

Of the yellow self-flowered kinds, perhaps, the best is Calochortus luteus, var. concolor, a deep golden flower and a vigorous species. There are also many purple forms, mostly self-colored or slightly shaded, which do not appeal to me as favorably as the others, though there are spotted kinds. The best is probably C. splendens, a lilac-colored form, which has finely dentated petals and the base of the cup filled with hair-like growths. Many of the Calochortuses have these growths, but none, I think, in such profusion. Probably the specific name of this species refers rather to some one's botanical enthusiasm than the gratification of his color sense. C. Catalinæ is a distinct kind, the white petals being flushed with purple on the outside. Calochortuses seem to be attractive to a number of different insects, and they bear seeds freely. C. Plumariæ seems to be a late-flowering species.

Elizabeth, N. J. *J. N. Gerard.*

The Abelias.

THERE are some half a dozen species belonging to this genus, with one or two varieties, natives of northern India, Japan, China and Mexico, where one species grows at an elevation of 10,000 feet above the sea-level. Abelia rupestris, introduced by Robert Fortune from China nearly fifty years ago, is the species best known in this country, where it is frequently called A. floribunda, the name of a red-flowered species from Mexico. A. rupestris has flowers about an inch long, and white, the two lower divisions of the corolla being faintly tinged with pink. The calyx is of a brick-red color, and at certain times of the day the flowers are delicately scented. Although in this latitude A. rupestris will commence blooming by the latter part of June, it keeps on unfolding its flowers late into November. It would be hard to find a more desirable decorative shrub. It can be grown to form a perfect hedge or a compact specimen on the lawn when kept free from other things, or it may be had in long graceful branches by allowing the strong shoots to develop and by removing the twiggy growths at the base of the plant. For grouping in city parks and for cemetery use its long period of flowering should alone recommend it. The species is, without doubt, quite hardy in this vicinity, as plants which were put out by Downing are yet in a flourishing condition and promise to remain so for years to come. When we have the thermometer registering a few degrees below zero it is untouched, save in the shedding of its foliage, which in ordinary winters is evergreen. At Philadelphia I understand it stands out without protection, and at Mr. C. A. Dana's place, on the north shore of Long Island, it thrives with a little protection in winter. There is a variety of A. rupestris called grandiflora which has larger flowers but fewer of them.

The Mexican Abelia floribunda is at home on the peak of Orizaba, 10,000 feet above sea-level, and on the Cordilleras of Oaxaca. Although it has withstood several winters here it cannot be recommended for situations farther north, but for the southern states it ought to be an admirable plant. It has pendulous flowers about two inches long, rosy purple in color, and it blooms at an earlier period than A. rupestris; but there are enough scattering flowers all through the summer to make the plant attractive.

Abelia triflora is a native of the western Himalayas, where it flourishes at an altitude of 9,000 feet. It forms a very pretty little shrub with whitish yellow and pink flowers in clusters at the ends of the branches. It is quite hardy with us, and so are A. serrata and A. uniflora.

The most successful way of propagating these plants is by cuttings taken just after the wood is ripe in the fall. Flowering shoots with the ends cut off make good cuttings, which can be rooted in a cool frame or propagating-house.

Botanic Garden, Washington, D. C. *G. W. Oliver.*

Irises in Late June.

THE English Irises closely succeed the Spanish kinds and keep up a succession of attractive flowers. As is well known, these bulbous Irises are not English, but Pyrenean, and gained their name in Holland because they were introduced through the former country. The bulbs of this species are longer and rougher than those of the Spanish varieties. The leaves are wider and the flowers are larger in all their parts. They are white and all hues of purple from blue to red, and their effect is distinct from that of the brighter-colored Spanish Irises. The white-flowered form, known as Mont Blanc, is the choicest of this species, for it seems to be a true species. Shortly after the middle of July appear the Japanese Irises, as the hybrids of I. lævigata, or Kæmpferi, have come to be known. The type of this species is a blue-purple, and, as is frequent in wild plants, a white-colored form. These Irises as imported have usually the same characteristics of flower and foliage, though the Japanese offer as a type form one with shorter and broader leaves. This may possibly be the form lately noticed in an importation and separated by Baker as I. albo purpurea. It is curious that though some fine forms of I. lævigata were sent here by Mr. Thomas Hogg soon after the Japanese treaty ports were opened many years ago, they did not meet with general appreciation until a few years ago. The type has evidently been broken for many years, and besides the typical forms there will now be found those with colorings through the entire gamut of purples from the blue to the dull-red end of that spectrum. They also appear in selfs and mixed colorings, the mixtures being in spots and reticulations usually. There are also single and double forms, which furnish altogether an extensive field for variation and a decided choice. As a rule, with their ordinarily sombre, dull colorings the thin large flowers, floating, as it were, and well raised on tall stems above the narrow foliage, are very effective in garden groups. Some of the forms, especially those which are double and splashed with varied colorings, do not seem to me great gains, and, like a good many other latter-day Japanese articles, seem to be produced to cater to the present department-store standard of taste. I notice that one of this type is frankly named in the catalogue, "Maple leaves spoiled by rain."

Elizabeth, N. J. *J. N. Gerard.*

Flower Garden Notes.

ALTHOUGH semi-tropical bedding plants are not making rapid growth, owing to continued cool nights, the weather in May and June suited most plants exactly. Perennials of all sorts have made remarkably vigorous growth, the frequent copious rainfalls during the past six weeks having been just what they needed. We have recently gone through our beds of herbaceous stock and securely staked all the plants which required it, and carefully hand-weeded the beds at the same time. Seed-pods of Papaver orientale have been cut off, and of a few other plants which become nuisances if allowed to seed without restraint, and bare spaces of ground have been lightly stirred with a hoe. Now that warm and dry weather is setting in, the advantages of leaving on the old manure which covered the beds during early winter and of not wheeling it away or digging it into the ground are apparent; beds with a mulching of this sort can stand quite a severe drought without suffering. Perennial borders usually have a somewhat seared and dilapidated appearance after the middle of July, when Pæonias, Irises and many other showy flowers have waned, but Zinnias, Dianthus, Gaillardias and numerous other bright annuals among these plants make the beds a mass of color from the latter part of May until they are cut down by frost.

Seeds of such biennials as Sweet William, Canterbury Bells, Antirrhinums, Wallflowers, etc., have been recently sown, and will be kept well watered until they germinate. When large enough to handle, these are pricked off in nursery rows a foot apart. Coreopsis grandiflora is one of the best hardy plants grown for cut flowers, and a sowing of it may be made now to advantage. We lift and pot a number of these plants late in the fall and force them into bloom by the middle of May; they are particularly acceptable on Memorial Day, when bright yellow flowers are rather scarce. Pansies we sow early in August, and find Trimardeau the best all-round variety. This season

has suited Pansies better than any I can recall. Hollyhocks should have been sown before this time, but it is not too late to do so now.

Beds of tender-flowering and foliage plants require some attention each week to keep them attractive. Seed-pods and decaying foliage from Cannas, faded flower-trusses from Geraniums and the tops of many foliage plants should be removed, while the surface soil should be kept stirred and all grass verges trimmed. No flower-bed can look well if the verges are poorly kept, but this neglect is often noticed in private and public grounds. Cannas, to be at their best, should have copious waterings in dry weather, as they are semi-aquatic, and a scattering of fertilizer over the beds occasionally will help in the development of superior flower-spikes. The new Italian varieties, Austria and Italia, are very robust growers and flower freely, but the flowers are rather flimsy. Burbank appears to belong to the same class; it is, however, a grand yellow flower.

Hardy Roses of all sorts have produced capital flowers this year, the cool, showery weather bringing them on finely. Many of the old hybrid Perpetuals raised a generation or two ago still lead as the most popular and profitable sorts. Some varieties of more recent introduction are, however, great acquisitions; specially good are Clio, Marchioness of Londonderry, Captain Hayward, Earl of Dufferin, Margaret Dickson, Mrs. Paul and Helen Keller, all of which are reliably hardy here and possessed of good constitutions. The flowering season is now nearly past, and all faded blooms should be removed; also any Manetti or Brier shoots, which rob the plants of much vitality if allowed to remain. Crimson Rambler, one of the most charming pillar Roses ever introduced, is now a mass of bloom. If the new French varieties, Thalia, Aglaia and Euphrosyne, which we are trying, prove hardy and equally satisfactory as white, yellow and pink varieties, they are bound to become extremely popular. Mr. W. A. Manda, who has already sent out some pretty Wichuraiana hybrids, recently exhibited in Boston some crosses between Rosa Wichuraiana and Madame Hoste and Perle des Jardins which were deemed worthy of first-class certificates. Mr. Manda says these crosses are thoroughly hardy, make rampant growth and are very floriferous.

Carnations grown expressly for summer blooming are now beginning to flower freely and have recently been staked up. The winter-blooming stock must be looked over weekly and necessary topping done, the ground kept well stirred and all weeds growing near the plants carefully pulled up by hand. Violets look remarkably well thus far and are now commencing to make runners, which should be removed once in two or three weeks. Our last sowing of Asters and Stocks was made toward the end of June. The plants of the first sowing of Asters, Queen of the Earlies, are now well branched and will soon furnish flowers for cutting. Gladioli we plant in several batches for a succession of cut flowers. The last lot has just been put out, and these are useful during September and early October. If Sweet Peas have not already been mulched some suitable covering should be given them; seaweed, grass or short spent manure answer equally well. It should be remembered that they love to be moist at the root, and that to prolong the flowering season none of the flowers should be allowed to go to seed.

Taunton, Mass. *W. N. Craig.*

Correspondence.

Licorice Root.

To the Editor of Garden and Forest:

Sir,—Your brief allusion to licorice root on page 253 hardly indicates the magnitude of the trade in this commodity. It really comes to this country in cargo lots, and you may be interested in a few facts well known to the trade and which have been published at different times in various pharmaceutical journals.

Until less than thirty years ago Spain was the main source of supply for this country. Persistent collecting has almost exterminated it in some sections of that country and much of the limited quantity now exported is of small and fibrous roots skillfully assorted and packed with the few larger ones to make the best effect. The Spanish licorice is sweeter than any other, and is specially valued for use in lozenges and pharmaceutical preparations. The extract of the root boiled down and evaporated is familiar to us in rolls an inch or more in diameter and about eight inches long. A test of purity in this form is its solubility in water, but adulteration is common. Potato starch and other farinaceous substances are used, with sugar, in licorice confectionery. The root from Sicily approaches that from Spain in its mild and sweet qualities, and the Italian roots yield the richest extract.

Immense tracts in Russia and Asia Minor are covered with the Licorice-plant, which is regarded by farmers as a nuisance to be cleared away before the ground can be used for agriculture. The trade in licorice began in Russia about twenty years ago, and the plains of that country offer an almost unlimited field for collectors. The Caucasus Mountains are also a favorite collecting ground, and uncultivated districts in Turkey and Greece, for all the licorice of commerce grows wild. Greek root is a name popularly given in the trade to all licorice root except the Spanish. The saccharine and starchy properties are affected by the soil, and also the color of the root, which is yellowish, reddish or brown. The tap-roots of one kind of Licorice extend three to six inches downward, and of another sort to but half that depth, the latter being, of course, more easily gathered. The digging begins in autumn after the rains have set in, and the same ground yields a crop once in three years. In Russia, now the principal exporting country, the collecting is done by natives of the peasant class in the section between the Black and the Caspian Seas. The roots are delivered at local stations, cleaned, some of them peeled, dried, packed and carried by rail to the seacoast. Large factories for curing the green roots and for extracting the juice are operated in Transcaucasus by English capitalists, and the largest of these each have a yearly output of 5,000 tons, or above 10,000,000 pounds. So heavy is the trade that a fleet of vessels is employed on the Black and Caspian Seas in transporting licorice alone.

The Russian roots and those from all that part of Europe and from Asia Minor have a slight acridity, and are used mainly for flavoring tobacco and various drinks. The price of these is considerably less than that for Spanish roots, and mature first-grade roots from Spain command twice as much. Like Ginseng, this root is highly esteemed by the Chinese, and is largely used by them as a tonic and for supposed nutritive qualities. In 1892 the United States alone imported one hundred million pounds of licorice, and the quantity is steadily increasing.

Philadelphia, Pa. *B.*

The Bladder Nuts.

To the Editor of Garden and Forest:

Sir,—I am surprised that the European Staphylea pinnata is not more often found in our shrubberies. It is a good deal better than S. trifolia, the native Bladder Nut of our eastern states with clusters of white bell-shaped flowers. S. pinnata has bolder leaves, larger flowers, which are pure white and fragrant. S. Bumalda, from Japan, is also very interesting, and S. Colchica, whose flowers have the fragrance of Orange blossoms, is the most beautiful of all, a compact little shrub, which is said to be good for forcing. All these plants are interesting, even after the flowers are gone, with their inflated pods which give them the common name. Few shrubs have given me more pleasure than the various species of this genus.

Shepherdstown, W. Va. *Danske Dandridge.*

Periodical Literature.

A recent article in the *Pall Mall Gazette* gives an interesting account of the culture and brief harvest of those strange little "immortal" flowers so closely associated with mortality on the Continent and in London also, though the fashion for them in England is of a more recent date. Naturally they are a valuable crop, and, strangely enough, a somewhat difficult one to handle, as they will not grow everywhere. The world's supply of them comes from the neighborhood of a little burg, Ollioules, in the Var, near Toulon, half a dozen miles out on the main road to Marseilles, in the south of France. There, on the edge of a straight and narrow pass, bordered with piled up, cleft and calcined rocks, on the arid soil that suits it best, grows the "Immortelle," that curious Amaranth, Helichrysum orientale. The plants are low, flat and rosette-like, appressed on the ground, each one sending up two or three slender stalks, which about the first week in June are covered with small Primrose-buds. Each stalk carries some twenty or thirty buds, and the right moment for their gathering must be carefully watched for by the harvester, as too early is as disastrous as too late, since the flower then perishes in drying. After the drying process, an easy

one in the sun-baked valley, comes the dyeing, when the "immortelle" takes on its conventional ruddy color. Many of them are also dyed black for the purpose of picking out the legend or dedication on cross or wreath. They are then bunched and boxed for transportation to Paris or London, as the case may be. The crosses and wreaths are largely made up on the spot, the feminine fingers at Ollioules being passing deft at this unique and intricate industry. Every bud has to be sewed into its place on the framework of plaited straw, which is the backbone of the design and which must not show when the article is ready for the market.

"Immortelle" prices vary at Ollioules; last year, for instance, they sold for £3 per hundredweight, and a good year brings in £8,000 to the small community.

Recent Publications.

The Spruce Forests of Maine.—II.

Third Annual Report of the Forest Commissioner of the State of Maine, 1896. Augusta: Burleigh & Flint.

This rapidly diminishing supply of standing timber makes the question of the future growth of the trees which remain and the reproduction of new ones one of vital moment, and Mr. Cary gives much space and many valuable data to its discussion. He ascertains the rate of growth that is to be expected of the trees which the lumberman has left, and argues the question whether and to what extent more economical cutting pays. At present the practice, varying in different parts according to the facilities of bringing material to market, is to cut down to eight-inch diameter, breast-high, although occasionally larger trees are left uncut, being either overlooked or inconvenient to get out. The amount of wood left to the acre of measurable volume of Spruce Mr. Cary sets down as in general varying from 300 to 500 cubic feet, according to the closer or more liberal practice of the logger. On these left-over trees Mr. Cary determines the annual growth in volume a year at from two to three per cent. compound interest. The method employed to arrive at such result, namely, by the use of Pressler's accretion borer, is, to be sure, of questionable value for the purpose for which Mr. Cary uses it, although excellent under very different conditions; nevertheless, for a general statement, where accuracy is not of importance, we may accept the results as sufficiently close. If we take the largest figure of tree volume remaining, namely 500 cubic feet, at two per cent., the annual growth is ten cubic feet "which," Mr. Cary says, "at a fair equivalent might be called forty board feet." Eventually such a translation into board feet may become permissible, but it is hardly so for the first ten to twenty years, considering that we have to deal with only small-sized timber. Nevertheless, if we allow this figure to prevail over the entire area in question, and assume that the uncut portions participate in the same proportion of increase, the 2,800 square miles involved would add annually a round seventy million feet, board measure.

Mr. Cary, himself, guesses—for there is after all but little more than a guess possible from the meagre data—that the Kennebec area produces fifty-three million feet new growth annually. Applying the same ratio to the much harder cut, and hence, in regard to annual growth, much less favorably situated Androscoggin district, we arrive at the same total, namely, seventy million feet of new growth on these two areas. That is to say, after the sixteen years, for which the virgin supplies are estimated to last, there would have accumulated in new growth at best not enough to supply four years of the present annual cut. Mr. Cary abstains from applying his figures or drawing conclusions in this way; on the contrary, he speaks with a sanguine air of "the bounty of nature in setting at our hand greater supplies, when all are considered, than we are yet able to utilize," and thinks that "to talk of European economy for the state of Maine is folly."

Many other notes of interest are to be found in the volume, which the interested reader will find hidden away in the recesses of this woodman's tale, of which we can mention only a few. Here is, for instance, a most valuable observation to be heeded by the forest exploiter, namely, that where Spruce forms the prominent feature of the virgin growth, the culling process of the lumberman prepares a large loss in the shape of windfalls; older trees left, having lost the support of their neighbors, are uprooted and thrown. This loss Mr. Cary estimates as often more than half the timber left. Thus he states the account of a sample acre as follows:

Left standing by the logger, -	850	cubic feet.
Blown down in 17 years, -	500	" "
Remainder, - - -	350	" "
Growth on it during 17 years,	150	" "
Now standing, - -	500	" "
Balance lost, - -	350	" "

The loss is really much greater, almost double; for we are entitled to the accretion on the entire amount left standing, hence adding to the 850 cubic feet, which the logger left, at the assumed rate of increase (2½ per cent.) for seventeen years, that is, 340 cubic feet, and deducting the amount now standing, namely, 500 feet, we find that 690 feet at least were lost during the time in original growth and accretion.

The account with another acre is calculated as follows:

Original stand, 52 trees of 12-inch and over,	1,360	cubic feet.	
214 " of 3-12 inch, - - -	1,440	"	"
266 "	2,800	"	"
Utilized 36 per cent. in logs hauled, - - -	1,020	"	"
Wasted 47 per cent. in stumps and tops, -	340	"	"
Wasted 47 per cent. destroyed in cutting,	480	"	"
Wasted 47 per cent. blown down, - - -	480	"	"
Left to grow, 17 per cent., - - - - - - -	480	"	"
	2,800	"	"

Mr. Cary advises, therefore, to cut down to the lowest available diameter wherever Spruce stands thickly, in order to reduce the inevitable loss by windfall, while in mixed growths in which hardwoods predominate, and hence the timber left is supported by neighbors, the cut may be more conservative without danger of windfall.

He then attempts, with admittedly insufficient data, to discuss the financial difference of a severe and a conservative cut. The results can hardly be more than illustrative of what natural reasoning leads to, namely, that the severer the cut the less is left to grow and the longer the time, when the logger may come again on his robbing expedition.

In this part of the discussion Mr. Cary makes what, from the forestry point of view, we must consider a vital omission when he leaves the question of reproduction entirely undiscussed. This is like a stockman who sees in his swine, young and old, nothing but animals to be fattened and slaughtered as soon as they are fit to kill, but provides for no new litters to replenish the herd and keep up the supply. The young growth left is to grow on to log size and then to be cut—that is to say, the robbing system is simply to be continued as long as there is something to rob. It would have been proper for Mr. Cary to point out that under the present system, while the hardwoods remain occupants of the ground, with the Spruce constantly diminishing in number, not only will the rate of growth on the smaller sizes be constantly diminished by reason of the shade of the overgrowing hardwoods, but it is only a question of time, and not a very long time, when the Spruce will be practically eradicated, at least in all mixed growths. He fails to point out to the lumbermen, for whose benefit he attempts to find the best method of management, that this system of culling out the Spruce must inevitably result in killing out all Spruce growth.

With all its shortcomings and its faults from a literary point of view, which seem due to the pardonably exuberant enthusiasm of a man who has found a new and promising field of work, the study of this report cannot but be helpful to all who are interested in practical forestry prob-

lems. The author states modestly enough that when he took the field he had "very indefinite ideas" as to the object to be attained, and began "with partially unformed purposes." This may account largely for the lack of form in the results. The author is a thorough woodman and good observer, and his contributions to practical forestry will, no doubt, gain in value with experience.

Washington, D. C. *B. E. Fernow.*

Notes.

The degree of Master of Arts has been conferred by Harvard University upon Mr. C. E. Faxon for his attainments in science and art. The readers of Garden and Forest know something of the substantial quality of his botanical knowledge and of his skill as a botanical draughtsman.

A very striking display was made at Floral Park during the last week in June when four acres of Japanese Irises were in flower. Nearly one acre is devoted to a pure white sort named Gold Bound, while the dark purple kinds are best represented by the variety Mahogany. The pale mauve of Exquisite and the bright blue of Blue Jay indicate some of the colors through which these flowers range. Individual flowers are said to measure nearly ten inches in diameter and single plants carry from twenty to twenty-five spikes.

A correspondent of *The Gardeners' Chronicle* writes from Manilla of a remarkable Dendrobium, a new species which has been named Victoriæ reginæ, in commemoration of the Queen's jubilee. The plant grows at an altitude of 6,000 feet and higher, and the branching stems produce great numbers of richly dark blue and white blossoms borne in trusses and lasting for several weeks. The flowers are more than an inch in diameter, the petals at the base being white, with a large blue blotch at the edges, the lip ovate, oblong and of the same color. It is, without doubt, one of the most striking of the Dendrobiums.

Professor Bailey and Mr. Wilhelm Miller have issued another bulletin on the Chrysanthemum which contains much that is of interest to florists and flower lovers generally. Mr. Miller's chapter entitled "Chrysanthemums at Home" is certainly worth publishing under the Nixon Act, and perhaps the horticultural knowledge which can be disseminated by investigations and publications of this character justify the use of the costly machinery of the experiment station in this particular direction. The question is whether it could not be used to better advantage elsewhere. But since the bulletin is published primarily for educational purposes, we must express our regret at the use of such a barbarism as "mum" for Chrysanthemum. A subject which is of sufficient importance to be discussed in a bulletin from a university ought to command the use of dignified and scholarly language.

What is said to be the largest sale of Mediterranean fruit ever made in this country took place in this city on Monday of last week, when the cargoes of three steamers were disposed of. Almost 45,000 packages of oranges and lemons were bid off in the auction, which lasted five and three-quarter hours. The sales aggregated almost $75,000, or $200 for each minute of that time. When it is considered that the report of an expected cold wave influenced the demand for lemons unfavorably, and that the sales were in as small lots as five boxes and upward, the sustained energy of the auctioneer and the general business dispatch are better realized. A cargo of the same fruits was disposed of on each succeeding day of last week, and the week's sales amounted to 30,300 boxes of Sorrento, Palermo, Messina, Rodi and Catania oranges and 122,050 boxes of Messina, Palermo, Maiori and Sorrento lemons.

The United States Department of Agriculture has just issued the first number of a new series of brief popular bulletins based upon the work of the experiment stations for the purpose of setting forth the practical side of certain features in the progress of agricultural investigation. An introductory note states that this work must not be depended upon to lay down any "rules for farming," and that the results reported are generally regarded as tentative and suggestive rather than conclusive, leaving to the individual farmer the problem of applying the results of experiments to his own peculiar conditions. This bulletin of thirty pages treats of a dozen topics, and every paragraph is full of instruction. A chapter of three pages devoted to the subject of barnyard-manure is exceptionally good in its treatment of a subject of prime practical importance and one that has been the study of the most eminent agricultural chemists ever since agricultural chemistry has been a science. How to manage and preserve this product in an economical way without losing any of its fertilizing value is a problem in which every cultivator of the soil is vitally interested, and in these few paragraphs some of the results of the latest researches of the leading experimenters in the country are explained in clear and simple language.

The Rural New Yorker regrets that Magnolia hypoleuca is still a rare tree in the United States, and, indeed, it is remarkable that so beautiful a tree remains comparatively unknown, although it was sent to the United States thirty-two years ago from Japan by Thomas Hogg. We published a figure of it in the first volume of Garden and Forest, taken from a tree which was planted with many other rare Japanese plants at the foot of Eighty-fourth Street, in this city, in 1865, where it may still be standing, although an alteration in the grade of the street has left it bruised and hidden behind a bank of earth. The foliage is light bright green above and pale steel-blue or almost silvery beneath, and its large flowers exhale an odor which by some is thought to resemble that of a pineapple, while others describe it as a combination of the wintergreen and the fruit of the banana. They have cream-white petals and scarlet filaments, and are six or seven inches across when fully expanded. In this city these flowers appear early in June, after the tree is in full leaf. It is a common forest-tree in the northern island of Japan, where it attains a height of a hundred feet or more with a trunk diameter of nearly two feet.

Bartlett, Lawson, Beurre Gifford, Comet, Wilder and Lawrence pears were among the fruits in sixty-one car-loads received here from California last week, with Alexander apples, and peaches, plums, prunes and cherries in extended variety. It is interesting to note the trade in dried fruits so late in the season, and evaporated apples, raspberries, huckleberries, blackberries, cherries, apricots, peaches and plums of last year's crop are sold in the home markets and exported in considerable quantities. The highest grade of evaporated apples are still in demand for shipment abroad, and nearly 1,700 boxes of dried fruits and raisins left this port for Liverpool alone last week, while 850 packages of dried California fruits were shipped to Hamburg. So late as June 19th the weekly output of dried prunes from San José, California, amounted to above 45,000 pounds. Other exports of fruits and vegetables which suggest the complex demands of trade are 900 crates of bananas shipped to England during the past fortnight, and 245 barrels of winter apples. Several thousand barrels of American potatoes leave this port for Cuba each week at this season, and the first consignment for this year of fresh California fruits, consisting of five car-loads, was started from that state for London on June 29th and is due in England about July 13th.

A bulletin just issued by the Agricultural Experiment Station at Alabama gives an account of some hybrids between American and foreign Cotton-plants which were tested last year. Seeds of foreign varieties which had been acclimated by planting in the United States, from different parts of India and from Egypt, were crossed both with the Long Staple and Short Staple varieties grown in the United States. Sea Island Cotton, which belongs to the species Gossypium maritimum, sells for twelve cents a pound, but the demand is greater than the supply, and therefore the Long Staple Cottons of Egypt find ready market here. Fifty thousand bales of this cotton were sold in the United States in 1896, and buyers were glad to pay eleven cents a pound for it. Without giving in detail the results of hybridization, it may be said that many of the Indian Cottons, as, for example, those derived from G. hirsutum, did not blend with certain American kinds, but some of the Egyptian forms which are varieties of G. maritimum, to which our Sea Island Cotton is referred, combine well with this type. Mr. Mell, the experimenter, concludes that the hybrids between the Egyptian and American kinds are generally equal to the parents in good qualities, and the Egyptian kinds make better fibre in length of strand, in strength and texture, than the Indian kinds. The Sea Island Cotton in combination with two of the Egyptian varieties produces a superior grade of staple, and the plant is rather prolific, so that there seems to be a prospect of securing a variety which will be a healthy, long-staple, upland cotton. A blending of small-bolled species with large-bolled species is not advised, since the resulting cross is generally weak, but when plants referred to G. maritimum, which is slow in maturing its bolls, so that frost often catches them before they are open, are united with a suitable strain of G. hirsutum, the hybrid reaches maturity quicker and is more prolific, and the combination of these species yields a plant which produces fibre of the best grade in strength, maturity, twist, length, fineness and yield to the acre.